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Bond Market Access and Financial Leverage

- A Study of the Swedish Corporate Bond Market

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Abstract

The Swedish corporate bond market has evolved into a viable choice of financing for Swedish firms. There has been a rapid growth of corporate bonds issues. Meanwhile, we see an increase in the leverage ratio for firms with bonds. Historically, the demand for leverage has been seen as a function of firm characteristics. However, more recent studies have emphasized on the importance of the supply side of capital and on market constraints. In the present study, we test if *firms with bonds have a higher leverage ratio than firms with no bonds*, and if *firms with bonds use the public debt market as a complement rather than a substitute to the private debt market.* We look at the demand and supply sides of leverage and how it differs whether firms have access to the corporate bond market or not. Our results indicate that firms with bonds have on average a higher leverage ratio than firms without bonds. We find that the real estate and the corporate services sectors are dominant for firms with bonds for the years 2010-2014. Our results indicate that firms in these sectors use the public debt market as a complement to bank debt.

Keywords: *Leverage, Swedish corporate bond market, public debt market, private debt market.*

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1 Introduction

According to the trade-off theory firms should use leverage until they reach their optimum level of debt (Frydenberg 2011). A higher level of debt creates interest tax shield benefits. Furthermore interest rate costs lower the amount of cash in the company, making the CEO less likely to accept risky projects and inflict managerial waste. If this were the only factors all firms would be fully financed by debt. There is also a reverse side of the coin. Debt also generates risk, such as the cost of financial distress. If macro-economical factors change and e.g. interest costs rise, the firm might become financially restrained, or even go bankrupt. The increased risk that comes with additional debt also lowers the debt rate a firm is able to withhold. A high-risk firm with potentially large financial distress cost might therefore benefit from a lower level of leverage in the same sense that a firm with high marginal tax rate might benefit from a higher rate of leverage. In that sense all firms should be optimal leveraged based on their prerequisites.

Some authors argue that firms might be wrongly leveraged, in fact underleveraged. Graham (2002) argues that the typical firm seems to be underleveraged and has value to gain by increasing their debt rate. There can be several reasons behind this. One reason is that there might be market frictions that make lending too difficult or expensive for some firms. Issuing debt, costs come in form of fixed issuing costs and as variable firm monitoring costs. In a market with information asymmetry, costs are in general higher for smaller and riskier firms, which might make it hard for firms to fund their investments, (Stiglitz and Weiss 1981). A limited amount of suppliers of capital suggest that funding be limited as well. This would in turn suggest that firms with access to the bond market have an additional source of capital and better conditions for funding. Funding through a quantity channel (more lenders and greater supply of capital) or through a price channel (accessibility to cheaper sources of capital makes firms borrow more) (Faulkender & Petersen 2006).

Our research sets out to investigate what effect the Swedish corporate bond market has had on the leverage of Swedish firms, whether the public debt market works as an alternative for private debt or as a complement to increase leverage. If firms with access to the public debt market have a higher level of leverage it suggests that the corporate bond market is used as a complement to bank debt. If results are not significant it suggests that the corporate bond market rather works as a substitute to bank debt. The effect of the public debt market is measured by comparing firms, which have access to the corporate bond market and those that do not. This forms the basis of our study.

Our results indicate a correlation between leverage and the access to the Swedish corporate bond market. Especially in recent years we see a trend for firms with bond market access to have a higher level of leverage than for firms without access to the corporate bond market. Among firms with bonds issued post-crisis, we find a majority of the firms in the real estate and corporate services sectors. We do not believe these sectors to be over representative for firms with bonds issued post-crisis by a coincident. Firms in these sectors are typically firms with a high amount of leverage.

A particular paper of interest is Faulkender & Petersen (2006). They investigate the accessibility to the bond market and the leverage of listed firms on the American market. In many ways our two studies are similar. There are practical differences such as that we investigate different markets, use different definitions and another proxy for access to the bond market. The main difference however, is the intentions behind the articles. Faulkender & Petersen sets out to investigate how supply of capital affects leverage. Our research sets out to investigate the establishment of the Swedish corporate bond market and its association with the leverage of firms with bond market access. The intention is not necessarily to conclude whether firms with access to the bond market have a higher level of leverage than firms with no access, but it is to investigate in what way the Swedish firms are utilizing the public debt market. That would tell us more about the corporate bond market and its possibilities.

The Swedish corporate bond market is a relative new phenomenon on the credit market. While there has existed a market, it has not been nearly close to this magnitude before. The lack of maturity however, implies for some implications. The most prominent one is the lack of data. For example, in 2004 where we start our study period there are only a handful of observations. A small sample size is a bad omen for any statistical analysis. Even though the sample size becomes greater for each year it still causes obstacles when statistically comparing observations on a yearly basis. Basically, few observations cause problems with the sample distribution, causing large standard deviations and limit the level of statistical significance. A second implication is related to the age of the corporate bond market and the lack of published data. Previously there has not really been reason to collect data of this matter on the corporate bond market simply because the market has barely existed. As the Swedish corporate bond market becomes more and more relevant for Swedish firms so does the data and research behind it. The lack of previous research make for some implications, but it also leads to a very interesting a pioneering type of research.

The outlay of the essay is as follows. In section 2 previous literature is presented with an overview of both empirical and theoretical progression. We discuss extensive empirical work done on some parts of capital structure and the lack of research done on the Swedish corporate bond market. In section 3 the background of the Swedish corporate bond market is described. Next we present our data, needed adjustments and the strategy behind the empirical methodology in use (section 4 and 5). In Section 6 we present our results and in section 7 we present our conclusion.

By using the Swedish corporate bond market and studying firm leverage between the years 2004-2014 we aim to test two hypotheses; 1. Firms with bonds have a higher leverage ratio than firms with no bonds, 2. Firms with bonds use the public debt market as a complement rather than a substitute to the private debt market.

2 Previous literature

The number of studies in the field of capital structure are immense and sometimes the findings are contradictory. One common ground is the famous Modigliani & Miller (1958). The article proposes a frictionless capital market where firms are always able to fund their positively valued investments. The source of capital is irrelevant as debt and equity are equally expensive and obtainable. In a perfect capital market, no regard is taken for factors like taxes, financial distress cost and mispricing. While this is the common ground, the point of the studies are to explain these discrepancies from the model with real examples in the business environment. The trade-off theory states that there is an optimal level of debt for a firm, one that maximizes value by marginal benefits of tax and minimization of managerial waste (Graham 2011). In a frictionless market all firms would be able to find this optimal firm. In other words, a firm capital structure would solely be based on a firm's demand. Murray & Goyle (2009) argues that a firm's capital structure largely can be explained by factors such as median industry leverage, market-to-book assets ratio, tangibility, profits, log of assets and expected inflation. Leverage is largely seen as a function of a firm's demand, of a firm's characteristics.

Several studies contradict the theory that leverage is solely based on firm characteristics. For example, Frydenberg (2011) looks into the pecking-order theory and the static tradeoff theory and argues that even if the models of capital structure are many, "few if any give a complete picture". There are even some who argues that firms are underleveraged, that firms are missing

out on the value created from having a higher debt ratio. Graham (2000) argues that the typical firm seem to be undervalued. If that is true, there are only two possible explanations, either the company chooses to leave the money on the table or there are some market restrictions hindering the firm from increasing its leverage. One that expands on the latter is Faulkender & Petersen (2006). Faulkender & Petersen (2006) investigates the relationship between access to the bond market and firm leverage. Companies are defined by having access to the public debt market by having a debt rating. By comparing firms with access to the bond market and those without the authors could determine if there was a correlation between access to the bond market and a higher debt-equity ratio. Indeed the authors report a correlation between access to the bond market and a higher leverage ratio.

Our study takes the same standing point as in Faulkender & Petersen (2006), investigating the accessibility to the bond market and firm leverage. Our study is conducted on the Swedish corporate bond market, which naturally makes it a different kind of study. To our knowledge, no other study has addressed these issues on the Swedish corporate bond market. Besides various national differences, the Swedish corporate bond market makes an interesting subject since it is still very much evolving compared to the more mature American corporate bond market.

3 Background

3.1 The Swedish corporate bond market

The Swedish corporate bond market is a relative new phenomenon. It started taking shape in the early 21st century after the establishment of the European bond market [Företagsobligationer (Landeman, L. & Bergin G. 2014)]. As of 2004 the Swedish bond market was still largely limited to a few well-known and credit-worthy Swedish companies. On the Swedish credit market, the bank sector has been highly dominant. It is still, at the time of the study, the main source of financing for Swedish firms.

The time-period 2007-2009 is a time of financial turmoil for the credit market. The repo rate went from 4.00 in 2007 to 0.25 in just 2 years (see appendix 2). Post the financial crisis various measures were taken to ensure this type of crisis would not happen again. Banks, which were regarded much to blame for the situation were subjected to a numerous number of capital restrictions. Perhaps the most noteworthy is the financial accord Basel III. Many banks were forced to shrink their balance sheets and required more capital backing for their riskier lending.

The capital restrictions made it costlier for the banks to give out loans. This cost made the banks require higher rates, and sometimes even hesitating to lend out money [Företagsobligationer (Landeman, L. & Bergin G. 2014)]. As a result, firms started looking for an additional source of capital.

A historically low repo rate, a low credit spread and a high demand for high-yielding assets, made for the perfect environment for issuing bonds. The Swedish Corporate Bond Market of non-financial companies rose to an all time high level in 2014 with outstanding bonds of 340 billion SEK Riksbanken (2015). Many Swedish firms turned to the public debt market for financing, even firms with no previous record of the public debt market. From previously being limited to only a handful of companies the Swedish corporate bond market had as of 2014, 41 firms with bonds ranging across 11 industries. The establishment of the Swedish corporate bond market was now a real alternative for debt. Swedish firms had now an additional potential source of capital.

3.2 Information asymmetry

In capital markets with information asymmetry firms might have difficulties to receive capital funding (Stiglitz & Weiss 1981). In order for capital investors to lend out money to a company they must be aware of the risk their investment induces. In order for firms to prove their investment risk they can obtain a credit rating, which investors use in order to decide upon investment alternatives (Kisgen 2007). Due to asymmetric information, receiving a credit rating is crucial for having access to the public debt market. Credit ratings ease the otherwise encountered information asymmetry that occurs when a firm knows more about its investment risks than the investors do. These ratings are costly and hence propose an obstacle for entering the public debt market. Far from all firms that seek capital can afford a credit rating and they are therefore excluded from the public debt market.

One unique thing with the Swedish corporate bond market is the credit ratings, or rather the seldom use of official credit ratings. Instead of an official rating the issuer receives an unofficial rating, directly translated from Swedish as “shadow rating”. The alternative shadow rating is cheaper and therefore affordable for a wider range of firms. These ratings are normally made by an intermediary financial firm such as a bank helping the issuing firm raise capital. Because the bank will benefit from a higher credit rating (due to a larger outreach to investors if higher rating) they have an incentive to give higher ratings. Shadow ratings might therefore not be as credible as official ratings.

When accessing private debt markets, covenant monitoring by the intermediaries are more intense on riskier firms. If monitoring of a firm is costly the cost should be reflected in the cost of debt, making riskier firms pay a relatively higher price for debt. Comparing firms with access to only the private debt market with firms with access to the public debt market as well, we would expect to see that firms with a wider access be more leveraged. A greater supply of debt would in theory result in lower price and therefore more firm leverage (Faulkender & Petersen 2006).

4 Data

Data on firms has been retrieved from Serrano. Serrano is a Bisnode based database with historical financial statement items. Bisnode in turn collects data from published annual reports. The items extracted from Serrano come as actual values or as multiples. For example, the post assets come as a stand-alone value whereas a post like solvency is calculated through a number of other variables. Missing values have been observed at numerous spots. We have considered using several databases, but ultimately we found that using one database would be more sustainable for our research.

Our study period encompasses 11 years, stretching from 2004 to 2014. Since very few observations were found for the time period preceding 2004 we chose to exclude those previous years. The most recent and complete accounting period 2015 was excluded because of the lag in financial report releases. Observations from other historical years have been excluded. For non-split fiscal years the data was collected at the end of each year.

We chose to include only firms publicly listed on the Nasdaq OMX. The main reason is that companies listed on Nasdaq OMX are required to do more comprehensive financial reports which is important since credibility and transparency is essential for the conduct of our study. Publicly traded firms are also of more interest due to higher financial stability than among private firms. Our firm sample is based on the 2014 listing. Listings on Nasdaq OMX are quite stable, but new public introductions are frequent and delisting happens. To get a comprehensive picture delisted firms are added back to their respective period.

Due to misleading financial contexture we have excluded financial companies such as banks and financial institutions. Serrano mixes financial and real estate firms in one category so a split has been made in order to sort out financial firms. Further on the public sector has been excluded.

We retrieved a list of bonds from Nasdaq OMX that stated which firms had bonds and what year the bonds were issued. Because it did not state the whole period the bonds were outstanding, we assumed they were outstanding the years between different bond issues. Some data has been manually added into the dataset, such as average annual growth rate (AAGR) of sales and average repo rate for the time period 2007-2014. Due to limited information access focus is on what information is available to the public. Information on bonds listed on Nasdaq OMX is easily accessible and with help from whom we received a list of bonds. There is a mix of issuers with official ratings and shadow ratings but as we find this as the closest indication on firms with bond market access we use it as our definition. We define access to the bond market as a having outstanding bonds listed on Nasdaq OMX.

Our main research variable, the leverage ratio, is calculated by Serrano using the adjusted total book value of long- and short-term debt compared to the adjusted value of equity.

$$Debt\ to\ equity = \frac{Adjusted\ total\ liabilities}{Adjusted\ equity}$$

4.1 Descriptive statistics

Some of the observations have missing values, and as a result they are excluded. Using descriptive statistics and analyzing a scatter plot for our leverage ratio we observed some extremely high max values. We therefore considered them as outlying observations (see appendix 1) and the observations were excluded from our study. Some observations have values equal to zero. Either they are unable to seek financing from the debt markets or they chose to be fully equity financed. However, as they propose only a small fraction of our sample we chose to exclude them from our study.

Sorting for publicly listed firms on Nasdaq OMX and adding back delisted firms we ended up with 275 companies. Over our 11-year research period we have a total of 2709 observations. Firms with access to the bond market are rare among the firms in our sample. Out of 275 companies 52 firms have issued at some time period, equivalent to 183 observations. Over the study period 17% of our total sample of firms had public debt during a given year. This figure stretches as low as 3% in 2004 to 16% in 2014 (see appendix 1).

5 Methodology

We are interested in what manner the firms with bonds use the public debt market. We follow in large the empirical strategy as presented in Faulkender & Petersen (2006), but make some additional testing to strengthen our analysis. By answering our two hypotheses we expect to get an idea about what the Swedish corporate bond market contributes and with how the firms are using it. By evaluating the results with theory and external data we check for alternative explanations.

5.1 Definition of access to the bond market

An optimal definition of access to the corporate bond market would be to cover all firms that are able to receive capital funding on the public capital debt market. That will almost certainly be an impossible task. An alternative way is to use a proxy for access to the bond market. One way to do this is to define having access to the bond market as having a credit rating. This is used as a proxy by Faulkender & Petersen (2005) and Judge & Korzhenitskaya (2012). In both articles, the authors find a strong association between having a debt rating and corporate bonds outstanding. Assuming a credit rating is highly correlated with holding bonds this seems to be a fairly accurate definition. However Sweden is a unique case in point. Having an official debt rating is not considered essential for issuing bonds in Sweden. Official ratings are available at the rating institutes, but the information about shadow ratings is only held by the banks. Due to the difficulties in retrieving shadow ratings from all banks, and the importance of having a complete sample, it is not realistic to receive all outstanding shadow ratings. Using a debt rating as a proxy for having access to the bond market is therefore insufficient.

Another way to proxy access to the corporate bond market is to use the proxy: having bonds outstanding. This might seem as an incomputable connection. All firms with bonds outstanding have had access to the bond market. But it is not obvious that all firms that are able to enter the corporate bond market have had bonds. We acknowledge the risk of bias when using bonds outstanding as having access to bonds but we consider it to be a fairly accurate proxy. In that sense bonds outstanding works as a proxy for access to the bond market.

5.2 Firm leverage

Firm leverage varies across different time periods and depends on numerous factors such as firm characteristics, supply effects and macro-economical factors (Graham & Leary 2011). The leverage rate during our study period has been fluctuating for all companies. A large part of

this fluctuation can be related to the financial crisis in 2008 and its following consequences and implications.

Due to uneven distribution of bonds over the years, one may assume that our results would get more significant the further forward we go in time. A contributing factor to potential misleading values might be the limited amount of information on corporate bonds, especially the further back in time we go. Looking at the low rate of public debt we can conclude that the public debt market is not used by the average firm. We test the level of leverage for firms with bonds and for firms without bonds outstanding.

5.3 Firm characteristics

We wanted to explore if there is significant difference in firm leverages. Firm leverage can be interpreted as a function depending on debt demand and supply.

$$Leverage = \alpha_D \times X_{Demand} + \alpha_S \times X_{Supply} + \mu$$

The amount of debt outstanding for firms with total debt market access is a function of debt demanded and debt supplied. If a firm has limited access to the debt capital markets it may not reach its demanded debt level.

$$Leverage = \alpha_D \times X_{Demand} + \alpha_S \times Bond\ market\ access + \mu$$

The supply of debt is tested for whether the firm has access to the bond market or not. Different firms have different characteristics and some would gain of being higher leveraged and gaining tax shield benefits. Some firms therefore demand more debt than other firms (Modigliani & Miller 1963). To examine and compare the leverage ratios of firms depending on their access to the public debt market we focus on the firms and their demand of debt. We use variables for firm characteristics to define what explains leverage. The chosen firm characteristics measured are firm sales, assets, PPE/Asset ratio, return on assets, and the annual average growth rate of sales.

We use the variables for sales and assets as size variables. Because the fixed costs related to issuing bonds are large, the issuing volume of public debt is expected to be relatively larger than private debt. Firms issuing larger volumes of debt should in theory be larger firms (Hovakimian, A., Opler, T. & Titman 2001). Firms with a higher ratio of tangibility assets are

expected to have a lower operational risk (Pulvino 1998). We use property, plant and equipment (PPE) as a proxy for a firm's asset tangibility (Titman and Wessels 1988). We therefore chose to include this ratio in our analysis. To test what effect firm return has on leverage we used the return on assets ratio as measure. To have an investment perspective on firm characteristics for leverage we used the common prediction model average annual growth rate (AAGR), basing the calculations on the last three years.

5.4 Testing

To get a good estimation of the sample of firms we started with a descriptive analysis for firm leverage. We look at our firm characteristics using descriptive statistics and compare them whether they have bonds outstanding or not. We then make a multiple regression using our independent firm characteristic variables to see how much they explain firm leverage and firms' demand for it. We also analyze if firms with and without bonds separately have firm characteristics that leads to higher demand for leverage. We regress whether the firm has bonds outstanding or not in order to measure the supply side factors. The regression assumes the variables are normally distributed. For all absolute values we therefore use their logarithmic values. To be less influenced by extreme values we first regress with Winsorize, removing the 1st and 99th percentiles from the independent variables. Secondly Cook's D is used as a weighted robust regression, dropping observations with Cook's distance greater than 1. This will however not address potential problems with heterogeneity of variance.

Testing our first hypothesis we use t-testing. The null hypothesis we want to test is if the mean leverage for firms with and without bonds are the same. We make the testing for each year over our study period. The further back in time we go the fewer observations for firms with bonds we have. This might affect the results from our statistical analysis. The t-test sets requirements on sample size. For small sample sizes other non-parametric tests might be used but we stick with the t-test.

We continue to investigate the relationship between bond access and leverage. In order to make the analysis, we split our time period in to two, pre and post the financial crisis. We conclude period 1 as pre-crisis and period 2 as post-crisis. Period 1 stretches from 2004 to 2009 while period 2 stretches from 2010 to 2014. We then explore, by using t-test, if the mean leverage varies between firms with bonds issued in period 1 compared to period 2.

We proceed and explore which sectors that differentiate whether the firm has issued its bonds in period 1 or period 2. We divide each group into firm industry sectors and study which

sectors are the most dominating. We then use our firm characteristic variables to conduct a multiple regression for firm leverage by each dominant industry sector. We assume firms in same industry sectors have likewise demand for leverage. The regression will tell us what firm characteristics drive demand for leverage. Here, we do not use additional robust tests due to low number of observations.

We test our second hypothesis with a t-test by looking at leverage ratios for firms in the same sector and compare them with and without bonds. A higher leverage among firm with bonds would suggest that firms use the public debt market as a complement to the private debt market. An unaltered leverage-ratio would instead indicate that firms are simply replacing bank debt for public debt.

5.5 Interpretation

Combined with literature and external data we can propose some explanation for our findings. We look at fluctuations in repo rate over the years. We look at the difference whether the firms have bonds or not. By looking at the number of observations for firms with bonds, we can measure to what extent firms have been using the bond market over the years and get a picture of how the financial crisis and it's following consequences have formed firm financing. With the results from the statistical analyses we will interpret the effects of the new business environment on the Swedish corporate bond market and its effect on the leverage of the firms within it.

6 Results

6.1 Firm leverage

In our sample the average listed firm had a leverage ratio of 1.12. There is dispersion of 0.28, from the lowest level in 2005 of 0.99 and the all-time high in 2008 of 1.27. The median is around half that of the mean value indicating that there are a number of firms with abnormally high level of leverage. The mean and median firm leverage reached its highest values in 2008. At the time we can observe that the repo rate increased 2008, reaching its peak value of 4.75% (see appendix 2).

Table 3. Average firm leverage for all firms during research period

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Debt-to-equity	Mean	1.05	0.99	1.04	1.2	1.27	1.17	1.14	1.08	1.16	1.07	1.15
	Median	0.58	0.56	0.57	0.69	0.8	0.62	0.62	0.64	0.74	0.69	0.78

Notes:
The table presents mean and median statistics of leverage measured as debt-to-equity for all firms. Measurements are made each year over the whole research period.

Firms with bonds had a higher leverage ratio compared to firms without bonds. Firms with bonds had an average leverage ratio of 1.6 compared to an average debt-to-equity ratio of 1.1 for those without bonds. As expected, the max values were almost alike for the two groups, since we excluded leverage ratios over 10. Firms with and without bonds had median leverage ratios of 1.4, and 0.6, respectively. In comparison, firms with bonds had 45% higher mean and 133% higher median debt compared to firms without bonds. This indicates that the leverage ratios are more homogenous for firms with bonds than firms with no bonds. Data indicates that firms with bonds have a higher level of leverage.

Table 5. Leverage by access to bonds

	Mean	Min	25%	Median	75%	Max
Firms with bonds	1.6	0.0	0.8	1.4	2.0	9.6
Firms without bonds	1.1	0.0	0.2	0.6	1.4	9.7
Total	1.1	0.0	0.2	0.7	1.5	9.7
Difference	0.5	0.0	0.5	0.8	0.6	-0.1

Notes:
The table presents summary statistics for firms debt-to-equity ratio depending on if they have bonds outstanding or not. The testing is made over the whole research period and reports the values of max, min, mean, and the 25th, 50th (median) and 75th percentiles.

6.2 Firm characteristics

Firms with bonds were differently composed compared to firms with no bonds. This in line with the results in Faulkender & Petersen (2006). Firms with bonds were on average 2.8 times larger than firms without bonds in terms of assets (see appendix 3). They were also 5.6 times larger in terms of revenue. This trend of enlargement continues, firms with bonds also have a higher volume of PPE. However, when calculating PPE over assets the ratio is smaller for firms with bonds compared to firms without bonds. A time trend was observed, firms with bonds had higher PPE over asset ratio for the years 2010, 2011, 2013 and 2014 (see appendix 3). Return on asset were on average twice as high for firms with bonds compared to firms with no bonds (see appendix 3). This is in line with the theory. Firstly, larger companies are by average more diversified and hence have a lower operational risk. Such a company can afford a higher financial

risk and usually hold a higher level of leverage. Secondly, issuing bonds usually comes with fixed costs and is therefore limited to larger companies.

Table 9. Firm characteristics for firms with & without bonds

	Bonds	No bonds	Difference
log(Sales)	12.80	10.80	2.00
	(12.13)	(10.64)	(1.49)
log(Assets)	16.12	13.56	2.56
	(16.66)	(13.49)	(3.17)
PPE / Assets	0.03	0.04	-0.01
	(0.00)	(0.00)	(0.00)
RoA	0.07	0.04	0.03
	(0.06)	(0.04)	(0.02)
Sales AAGR	0.15	0.15	0.00
	(0.08)	(0.06)	(0.02)

Notes:
The table contains summary statistics on firm characteristics for firms with bonds and firms with no bonds. Values are expressed as mean and median. The median values are presented in parentheses. There is a third column representing the difference. The independent variables are log(sales), log(assets), PPE/Assets, RoA, Sales AAGR.

In the multiple regression we found that log(sales) was a positive coefficient for leverage ratio in all regressions. Log(sales) is a negative coefficient for firms with bonds which is surprising. For firms without bonds the logarithmic value of sales had higher significance (p>99%) with positive beta. For firms with bonds the beta for log(Assets) was of similar value as for firms without bonds, but with less significance. This is due to large standard deviation and fewer observations. Log(Assets) have positive betas in all regressions and an overall positive explanation of leverage. PPE over Assets had a negative coefficient with low significance and a large standard deviation for firms with bonds. For firms without bonds PPE over Assets has a coefficient of 0.6183 with good significance (p>90%). Sales AAGR shows up as a negative coefficient with significance over 95%. When using the weighted regression using Cook's D robust test (see appendix 3), all firm characteristics had much more significance and for most of the betas the standard errors decreased. Log(Assets) still is the variable with most significance and with all betas of positive influence on firm leverage. With R-square value of 7.10% for firms without bonds we conclude that our chosen variables do not explain the variance of leverage with high extend. For bonds the firm characteristics explain more of the variance of leverage (r-square=10.53%). With betas of both positive and negative impact on firm leverage evidence for any general trends was not found. However, log(Assets) is the variable with highest significance and with all its betas of positive influence on firm leverage.

Table 10. Firm characteristics as determinants of firm leverage with & without bonds (Winsorize 1 to 99)

Variable		Total	With bonds	Without bonds
log(Sales)	Beta	0.0339*	-0.1079*	0.0527***
	St.d.	(0.0181)	(0.0620)	(0.0192)
log(Assets)	Beta	0.1568***	0.1318	0.1393***
	St.d.	(0.1960)	(0.1220)	(0.0207)
PPE / Assets	Beta	0.5050	-0.4761	0.6143*
	St.d.	(0.3234)	(1.3616)	(0.3300)
RoA	Beta	-0.5418**	2.7428	-0.5839***
	St.d.	(0.2002)	(2.5498)	(0.1997)
Sales AAGR	Beta	0.1020	-0.7392**	0.1343*
	St.d.	(0.0799)	(0.3734)	(0.0811)
Constant		-1.4121***	1.1261	-1.4111***
	St.d.	(0.2467)	(1.5581)	(0.2705)
N		1,501	125	1,376
R^2		0.0710	0.1053	0.0640

***p<0.01, **p<0.05, *p<0.1

Notes:

The table presents a multiple regression between our independent firm characteristic variables and the dependent variable firm leverage. The regression is made with all firms and also separately on firms with and without bonds. Firm leverage is measured in debt-to-equity. All independent variables are adjusted using Winsorize 1 to 99.

To summarize, firm size in terms of assets seem to be positively associated with firm demand for leverage regardless if the firm has bonds or not. It also seems to show most total statistical significance. Bonds have least significance for its constant due to low sample size and large standard deviations. We find that firms with bonds have different firm characteristics compared to firms with no bonds.

6.3 Corporate bonds and leverage

Firms with bonds have in the study had a higher level of leverage in every year except for the years 2004 and 2010. This makes logical sense since there were almost no companies with bonds in 2004 and 2010 was directly after the financial crisis. Furthermore, the difference in either case is very low (0.0158 for 2004 and 0.0089 for 2010) and the standard errors are large (0.4684 and 0.2312). The t-test assumes normal distribution and the large standard errors and low significance in early years may largely be due to the few observations of bonds. In other words, we cannot statistically reject our null hypothesis that leverage is the same whether the firms have bonds or not for the whole study period. Firms with access to the bond market for the years 2012-

2014 have a higher debt-to-equity ratio with statistical significance (95%, 99%, and 99% respectively) which means that we for the years 2012-2014 can statistically conclude that firms with bonds have a higher level of leverage compared to firms with no bonds.

Table 12. Test of difference in mean leverage for firms with & without bonds

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Firms without bonds	Obs	212	217	228	230	235	242	239	243	230	229	221
	Mean	1.0538	0.9889	1.0431	1.2033	1.2632	1.1656	1.1398	1.0654	1.0927	0.9428	1.0005
	Std. Err.	(0.1021)	(0.081)	(0.0891)	(0.099)	(0.0954)	(0.0922)	(0.0962)	(0.0861)	(0.0936)	(0.0719)	(0.0831)
Firms with bonds	Obs	6	8	10	9	10	8	13	14	28	36	41
	Mean	1.0381	1.1039	1.0665	1.2466	1.3570	1.2012	1.131	1.3431	1.6891	1.8489	1.9552
	Std. Err.	(0.4571)	(0.3136)	(0.2254)	(0.3136)	(0.2967)	(0.2784)	(0.2101)	(0.2321)	(0.0884)	(0.2449)	(0.2737)
Combined	Obs	218	225	238	239	245	250	252	257	258	265	262
	Mean	1.0533	0.9930	1.0441	1.2049	1.2671	1.1667	1.1394	1.0806	1.1575	1.0659	1.1499
	Std. Err.	(0.1000)	(0.0788)	(0.0858)	(0.0959)	(0.0922)	(0.0897)	(0.0918)	(0.0824)	(0.0884)	(0.0728)	(0.0847)
Difference	Mean	0.0158	-0.1150	-0.0233	-0.0433	-0.0938	-0.0356	0.0088	-0.2771	-0.5964	-0.9062	-0.9547
	Std. Err.	(0.4684)	(0.3239)	(0.2424)	(0.3288)	(0.3117)	(0.2933)	(0.2312)	(0.2476)	(0.2694)	(0.2553)	(0.2860)
Significance										**	***	***

***p<0.01, **p<0.05, *p<0.1

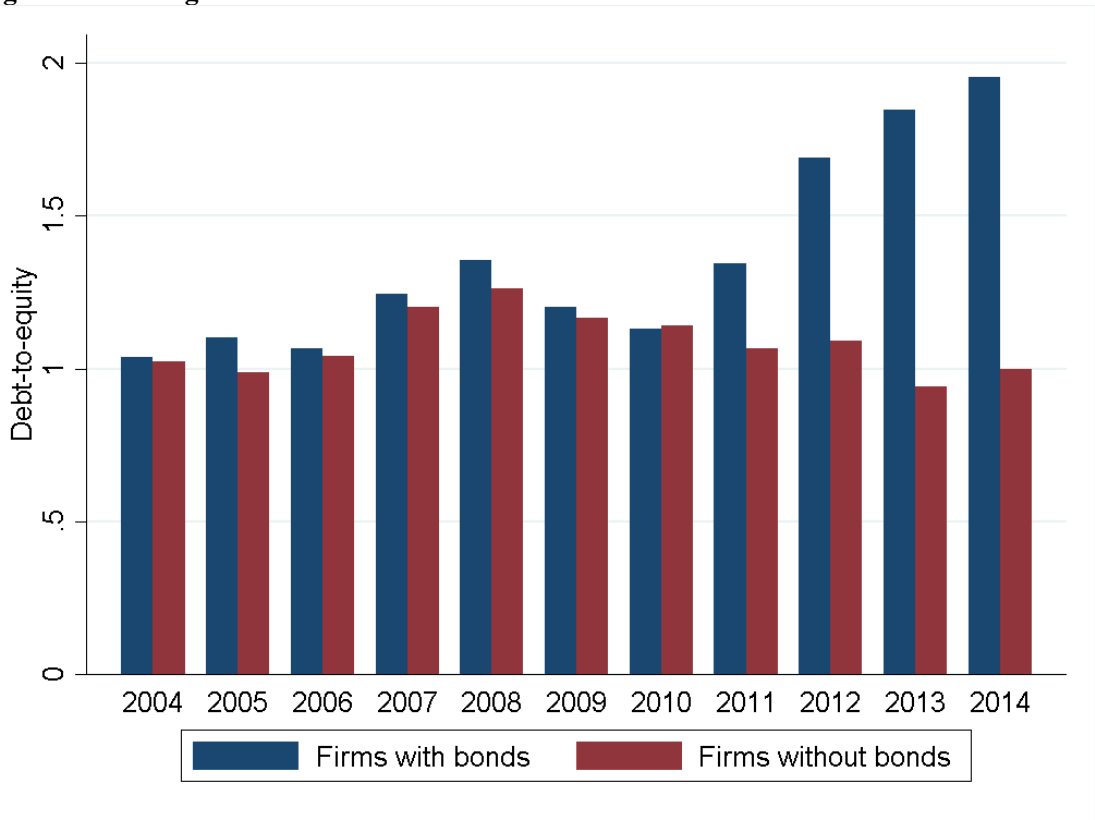
Notes:

The table presents the t-testing of the difference in mean debt-to-equity ratio between firms with and without outstanding bonds. The null hypothesis is that firm leverage is the same no matter if the firms have bonds or not. The test is made for each year over the whole research period. The total number of observations vary across years.

6.4 Change of trend

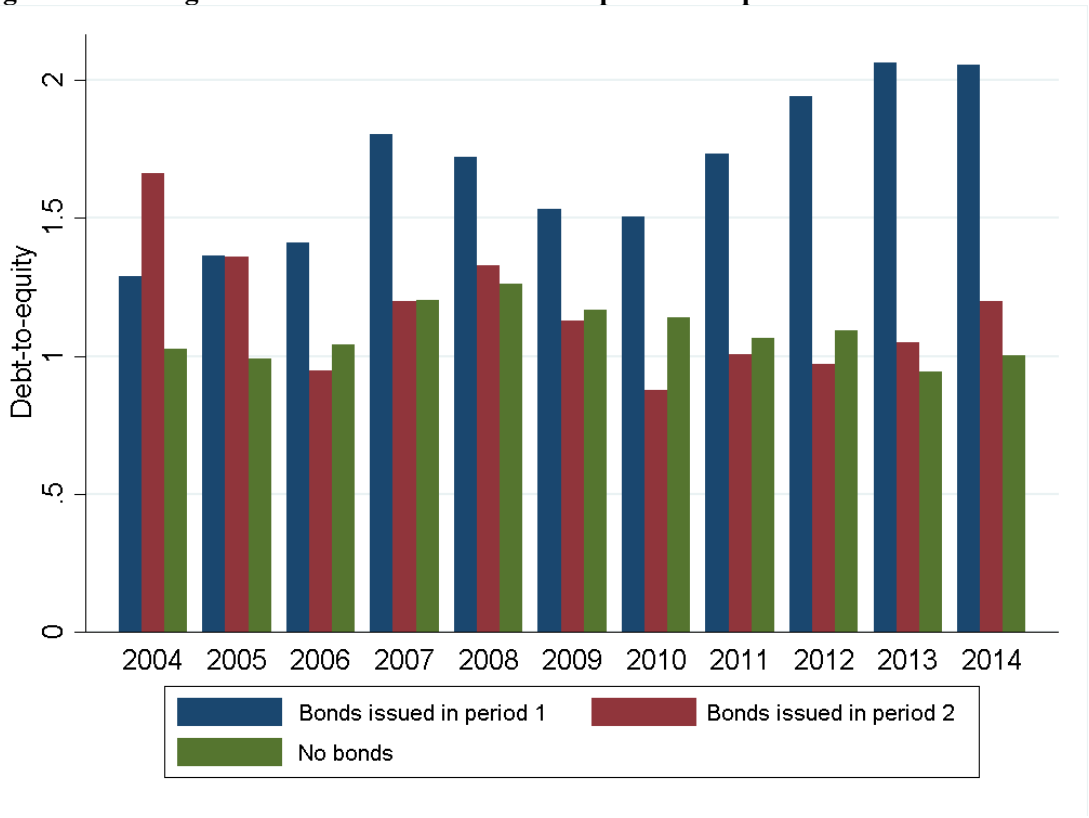
This section elaborates further on our second hypothesis, that firms with bonds are using the public debt as a complement to of private debt. The leverage ratio over the years is illustrated in the graphs below.

Figure 2. Leverage for firms with & without bonds



Notes:
The bar graph illustrates the mean leverage for firms with and without bonds. Leverage is measured as debt-to-equity for each year in the research period. Blue colored bars represent firms with bonds and red colored bars represent firms with no bonds.

Figure 3. Leverage for firms with bonds issued in period 1 & period 2



Notes:
The bar graph illustrates the mean leverage for firms with bonds issued in period 1 and period 2. It also shows the leverage for firms without bonds. Period 1 is for years 2004-2009 while period 2 is for years 2010-2014. Leverage is measured as debt-to-equity. Blue bars represent firms with bonds issued in period 2, red bars firms with bonds issued in period 1, and green bars represent firms with no bonds.

There is a change of trend for all firms 2008. There is a change of trend again in 2010/2011 for firms with bonds. For the years 2011-2014 there is a large discrepancy in the level of leverage between the firms with bonds and firms without. A more detailed look reveal that firms with bonds issued after 2010 have a steep increase of leverage after 2010. A second t-test showed that firms with bonds issued in period 2 had lower mean leverage than firms with bonds issued in period 1 for all years but 2004. In 2006 there was a major shift and firms with bonds thereafter had a larger mean leverage that gradually increased. There was low significance in difference for the major part of the years. First in year 2011 and forward we can reject the null hypothesis that the mean leverage for firms with bonds equals the mean leverage for firms with no bonds with significance (90%, 99%, 99% and 95% respectively) (see appendix 4).

There is a large discrepancy of industry affiliations between firms with bonds issued after 2010 and firms with bonds issued before 2010 (see appendix 5). For firms with bonds issued after 2010 there are two dominant industries, the real estate sector and the corporate services sector.

For firms with bonds issued in period 1, the industrial goods sector and materials sector are most dominant. Firms in the real estate sector represents 36% of the firms issuing bonds in period 2 and 10% of the firms issuing bonds in period 1. For corporate services this figure is 20% for firms with bonds in period 2 versus 6% for firms with bonds in period 1.

In the multiple regression analysis on industry sectors we saw that for real estate firms amount of assets determine much of the level of leverage with high significance (p>99%) (see appendix 5). For real estate firms this makes sense due to large balance sheets. Interesting is the PPE over assets variable. For real estate firms a higher rate of PPE relates to lower firm leverage with significance (B=-3.5825, p>95%). For corporate services firms the values are somewhat similar to those for real estate firms, but with less significance. However, the PPE over assets ratio here gave a large positive explanatory value for firm leverage (Beta=24.5900). The standard error was relatively high for its beta and cannot be considered very reliable. Higher standard errors and less significance for the corporate services sector might be influenced by the lower amount of observations. With R-square of 30.19 % versus 23.77 % for real estate and corporate services we found that the firm characteristics explain more of the variance for firm leverage than in our first regression.

Due to the low amount of observations we only provide the t-testing for 2012-2014. A low amount of observations equals bad distribution of values which leads to large standard errors. In the Real estate sector firms with bonds had less mean leverage in 2012 but more leverage in 2013 and 2014 than firms without bonds. The observations were very few and are likely the reason for the large standard errors and the low statistical significance for the difference in mean leverage (see appendix 5). The mean difference was larger for firms in the corporate services sector and firms with bonds had mean leverage almost double the leverage ratio over the three years. However, the differences had large standard errors and low significance, which are also are likely to be associated with the low amount of observations.

7 Conclusion

This study sets out to investigate the development of the Swedish corporate bond market and its potential effect on the level of leverage for firms listed on the Nasdaq OMX. Two main hypotheses have been tested; 1. *Firms with bonds have a higher leverage ratio than firms with no bonds*, 2. *Firms with bonds use the public debt market as a complement rather than a substitute*

to the private debt market. We started out following the empirical strategy as described in Faulkender & Petersen (2006). The preliminary results are alike. The results indicate that firms with access to the corporate bond market have a higher leverage ratio compared to firms without bonds. There is statistical significance that the firms with bonds had a higher leverage ratio compared to firms without bonds for the years 2012, 2013, and 2014. There is however lack of significance to conclude a causal correlation for the whole study period. Our results indicate that the demand for firm leverage is highly associated with amount of assets. With robustness testing we also find high significance for this for all firms, whether they have access to bonds or not.

We observed a steady growth in the number of firms issuing bonds between years 2004-2008. Following 2010, there was a major increase in the number of firms issuing bonds. At the same time data on leverage indicated a change of trend. Interesting was the entrance of a new group of companies on the public debt market around this time period. Firms that held bonds before the crisis had a lower level of leverage compared to of firms with bonds issued bonds post crisis. The difference in leverage was statistically significant for the years 2011-2014. This group of firms entering the bond market after 2010 was mainly in the real estate and corporate services sectors. These are industry sectors with typical high levels of leverage. This may be obvious for the two sectors, especially for the real estate sector that highly depends on capital intensive investments. The statistical conclusion is that firm size in terms of assets largely determines the demand for firm leverage is here also confirmed for both industry sectors, yet with no statistical significance for corporate services. When comparing real estate firms that have bonds we see that they have higher leverage 2013 and 2014. For corporate services firms with bonds have higher leverage 2012-2014. Firms with bonds have higher leverage than firms without in the two highly leveraged sectors suggest that these firms use the bond market as a complement to bank loans. Because the difference only was tested during the most recent years and that there was no significance, we are not able to base our conclusion on statistical evidence.

Regardless the low statistical evidence for that firms in highly leveraged sectors use the bond market as a complement to bank loans, we might find other explanations for such trend. These observations are made especially interesting as we can observe several macro-economic factors during this time. The repo rate had remained at a low number since 2009 and credit restrictions such as the Basel III were changing terms of bank loans on the private debt market. The low repo rate creates investment gaps, making investors seek higher returns on their placements. This investor quantity channel on bonds lowered the barriers for firms to receive capital on the public debt market (price channel). However, we cannot define to what degree the

corporate bond market enables higher leverage according to these theories. Our interpretation of the results is that the historically low repo rate and investors' increased demand for high-yielding securities likely improved the supply side of the bond market. This might explain the increase in number of firms with bonds, particularly in the real estate sector. This pattern strongly suggests that these types of industries and firms use the public debt market as a complement to private debt markets. Our results indicate a possibility that firms with no access are worse off in terms of leverage and by that in terms of value.

8 Implications and limitations

The Swedish corporate bond market is a relatively new credit market. Meanwhile, this makes it an interesting subject, there are several implications to consider. There are three main reasons to why this make for a difficult research subject, these are; the lack of observations, the limited study period, and the lack of previous literature. The study also leaves different outcome depending on the definition of access to the bond market.

8.1 Implications

Due to the short data length and the small sample size there are some implications regarding static significance. Many statistical methods require a larger sample size to produce reliable evidence. In our sample size we have a total amount of 2709 observations of which around 183 are labeled as bond observations. While this is a satisfactory amount of observations to running statistical methods on, the problem occurs when observations are distributed on a yearly basis or into different segments. The observations of 183 are suddenly dropped to just a handful. Basically, the Swedish corporate bond market was previously hardly a market with buyers and sellers. A few companies issued bonds, but this hardly provides with enough observations. In the smallest groups we are not able to achieve statistical significance. Even if we find many of the results interesting we are unable to draw any extensive statistical conclusions. In the more recent years 2012-2104 we have a much larger sample size of firms with bonds and hence we also get a much more accurate results, and in turn more conclusive evidence for our hypotheses.

The study period is an issue in terms of short-term fluctuations. Our study period stretches from 2004 to 2014. If we would go further back in time we would had a hard time finding any observations and as of today, there is only limited data released for 2015. Our study period of 11

years is in fact a reasonable length of time. The real issue is the turbulent time of the Swedish corporate bond market. Over the time-period 2004-2014 the number of observations have almost increased by seven times (6 observations in 2004 and 41 in 2014). There has been a boom and a recession. The high growth numbers leave risk for yearly fluctuations that could be interpreted as trends. It is therefore hard to map up any conclusive evidence regarding our findings.

There is no other study on this particular area of the Swedish corporate bond market. All major studies and previous literature is done on American data and thereby the findings might not be correlated with Swedish data.

In order to evaluate firms with access to bonds and without we use a proxy. By having a bond outstanding the firm is a labeled as having access to the bond market, and vice versa. Most certainly there are companies without bonds who have bond market access. While we interpret the risk to be small, there is a risk that the statistical study is biased. However, to conduct a study some estimations and proxies are to be made.

8.2 Future research

The Swedish corporate bond market's potential is yet to be discovered. The credit market's young age and rapid growth makes for many interesting subjects. We like to see a follow up on the development of the Swedish corporate bond market and the supply of capital. It would be most beneficial for the statistical relevance to add couple of more years and more observations to the research. There is also room for specialization. One example would be to focus on the real estate sector. Another would be to focus on small firms or perhaps on the high-yield market. As thep debt market is tightly linked to capital structure research can take countless directions.

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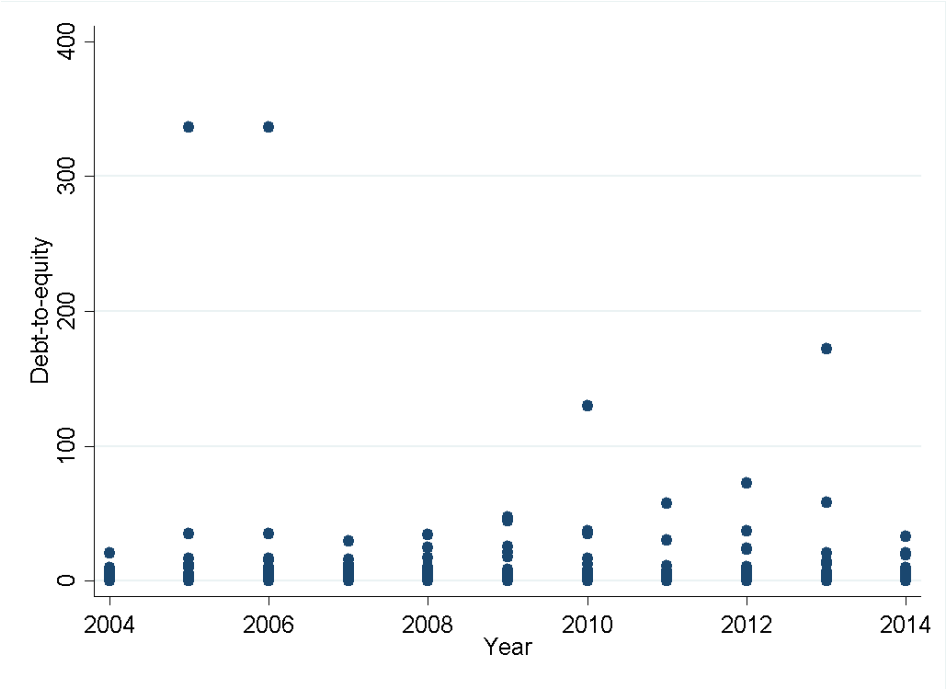
10 Appendix

Appendix 1. Descriptive statistics

Figure 1. Sample distribution of leverage



Notes:
The scatterplot illustrates the sample distribution of firm leverage measured in debt-to-equity for each year.

Table 1. Descriptive analysis of leverage

Debt-to-equity	Mean	Min	5 %	25 %	Median	75 %	95 %	Max
	1.8	0.0	0.0	0.2	0.7	1.5	4.5	336.4

Notes:
The table shows descriptive statistics for firm leverage measured in debt-to-equity. Statistics are made on leverage min, max, mean, 5th, 25th, 50th (median), 75th, and 95th percentile.

Table 2. Yearly bond share of total observations

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Count of observations	218	225	238	239	245	250	252	257	258	265	262
With bonds	6	8	10	9	10	8	13	14	28	36	41
Bond share (%)	3	4	4	4	4	3	5	5	11	14	16

Notes:
The table presents count of observations and the bond share of total observations for each year.

Appendix 2. Repo rate announcements

Table 4. Swedish repo rate announcements 2007-2014

Periods	2007	2008	2009	2010	2011	2012	2013	2014
Period 7*	4,00	2.00	-	-	-	-	-	-
Period 6	4.00	3.75	0.25	1.25	1.75	1.00	0.75	0.00
Period 5	3.75	4.25	0.25	1.00	2.00	1.25	1.00	0,00
Period 4	3.50	4.75	0.25	0.75	2.00	1.25	1.00	0.25
Period 3	3.25	4.50	0.25	0.50	2.00	1.50	1.00	0.25
Period 2	3.25	4.25	0.50	0.25	1.75	1.50	1.00	0.75
Period 1	3.25	4.25	1.00	0.25	1.50	1.50	1.00	0.75
Average	3.57	3.96	0.42	0.67	1.83	1.33	0.96	0.33

*Year 2007 and 2008 contain an extra period

Notes:

The table shows Swedish repo rate announced in 7 periods and average for the years 2007-2014. Measures are on a yearly basis.

Appendix 3. Firm characteristics

Table 6. Firm size and bonds (MSEK)

	Sales	Assets
Firms with bonds	3648	20200
Firms without bonds	654	7343
Share (%)	558	275

Notes:
The table presents firm size in form of sales and assets for firms with and without bonds. Volume is measured in MSEK. Volume for firms with bonds is measured as percentage of volume for firms without bonds.

Table 7. PPE/Assets ratio for firms with & without bonds over research period

	All years	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
With bonds	0.035	0.056	0.037	0.024	0.035	0.029	0.027	0.071	0.054	0.019	0.035	0.031
Without bonds	0.040	0.059	0.049	0.046	0.043	0.045	0.042	0.034	0.033	0.032	0.029	0.029
Share (%)	0.875	0.949	0.755	0.522	0.814	0.644	0.643	2.088	1.636	0.593	1.207	1.069

Notes:
The table shows property, plant, and equipment over assets for firms with and without bonds. Average is calculated for the sum of the period as well as for each year. The ratio for firms with bonds is also calculated as percentage of the ratio for firms without bonds.

Table 8. Firm RoA and bond access

	RoA
Firms with bonds	0.075
Firms without bonds	0.037
Share (%)	203

Notes:
The table shows the average return on assets (RoA) for firms with and without outstanding bonds. RoA for firms with bonds is also shown as percentage of RoA for firms without bonds.

Table 11. Firm characteristics as determinants of firm leverage with & without bonds (Cook's D)

Variable		Total	With bonds	Without bonds
log(Sales)	Beta	0.0438***	-0.0778**	0.0429***
	St.d.	(0.0090)	(0.0343)	(0.0090)
log(Assets)	Beta	0.1059***	0.2251***	0.0768***
	St.d.	(0.0098)	(0.0679)	(0.0098)
PPE / Assets	Beta	0.8368***	-0.1731	0.9691***
	St.d.	(0.1562)	(0.7194)	(0.1517)
RoA	Beta	-0.3028***	0.3381	-0.2713***
	St.d.	(0.0909)	(1.4183)	(0.0861)
Sales AAGR	Beta	0.0718**	-0.5347**	0.0836***
	St.d.	(0.0304)	(0.2081)	(0.0289)
Constant		-1.2200***	-1.0823	-0.8680***
	St.d.	(0.1234)	(0.8682)	(0.1283)
N		1,501	125	1,376

***p<0.01, **p<0.05, *p<0.1

Notes:

The table presents a multiple regression between our independent firm characteristic variables and the dependent variable firm leverage. The regression is made with all firms and also separately on firms with and without bonds. Firm leverage is measured in debt-to-equity. All independent variables are adjusted using Cook's D robust test.

Table 13. Testing of difference in mean leverage for firms with bonds issued in period 1 & period 2

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Firms with bonds	Obs	14	16	16	16	16	15	15	15	15	15	15
issued in period 1	Mean	1.6641	1.3614	0.9453	1.1985	1.3283	1.1283	0.8781	1.0059	0.9725	1.0499	1.2002
	Std. Err.	(0.4895)	(0.2430)	(0.1636)	(0.2156)	(0.2207)	(0.2426)	(0.1757)	(0.2013)	(0.1808)	(0.2050)	(0.2165)
Firms with bonds	Obs	27	28	28	29	30	30	30	30	32	33	32
issued in period 2	Mean	1.2889	1.3659	1.411	1.8027	1.7202	1.5325	1.5059	1.7356	1.9425	2.0631	2.058
	Std. Err.	(0.3703)	(0.1940)	(0.3464)	(0.4158)	(0.3047)	(0.2998)	(0.2924)	(0.3349)	(0.3012)	(0.2593)	(0.3439)
Combined	Obs	41	44	44	45	46	45	45	45	47	48	47
	Mean	1.4171	1.3643	1.2416	1.5879	1.5839	1.3978	1.2966	1.4924	1.6329	1.7465	1.7844
	Std. Err.	(0.2934)	(0.1940)	(0.2292)	(0.2801)	(0.2131)	(0.2158)	(0.2070)	(0.2372)	(0.2219)	(0.2002)	(0.2496)
Difference	Mean	0.3752	-0.0044	-0.4657	-0.6042	-0.3919	-0.442	-0.6277	-0.7297	-0.9700	-1.0132	-0.8580
	Std. Err.	(0.6138)	(0.3667)	(0.3831)	(0.4684)	(0.3762)	(0.3857)	(0.3411)	(0.3908)	(0.3513)	(0.3305)	(0.4064)
Significance									*	***	***	**

***p<0.01, **p<0.05, *p<0.1

Notes:

The table shows testing of mean difference in debt-to-equity for firms with bonds issued in period 1 and period 2. Period 1 represents years 2004-2009 while period 2 represents years 2010-2014. The null hypothesis is that firm leverage is the same no matter if the firms have bonds or not. The testing is made for each year.

Appendix 5. Industry sector analysis

Table 14. Industry sector distribution for firms with bonds issued in period 1 and period 2

	Energy & Environment	Materials	Industrial goods	Construction industry	Shopping goods	Convenience goods
Period 1	0	26	81	0	10	11
%	0	14*	44*	0	5	6
Period 2	0	11	22	14	9	17
%	0	3	7	4	3	5
	Health & Education	Real estate	IT & Electronics	Telecom & Media	Corporate services	Other
Period 1	15	18	11	0	11	0
%	8	10	6	0	6	0
Period 2	36	118	15	11	67	9
%	11	36*	5	3	20*	3

*dominant sector

Notes:

The table shows the distribution of industry sectors for firms with bonds issued in period 1 and period 2. Period 1 represents years 2004-2014 and period 2 represents 2010-2014. Observations are counted and measured to show percentage of total sample for each period.

Table 15. Firm characteristics as determinants of firm leverage in period 2

Variable		Real estate	Corporate services
log(Sales)	Beta	0.0942	0.5458
	St.d.	(0.2177)	(0.4436)
log(Assets)	Beta	0.8575***	0.4665
	St.d.	(0.2429)	(0.3914)
PPE / Assets	Beta	-3.5825**	24.5900
	St.d.	(1.4266)	(97.4208)
RoA	Beta	2.0736	3.5178
	St.d.	(4.7605)	(4.6769)
Sales AAGR	Beta	-1.2038	-0.6554
	St.d.	(1.2340)	(0.9788)
Constant		-12.0293***	-10.5631
	St.d	(4.1919)	(5.2831)
N		75	36
R^2		0.3019	0.2377

***p<0.01, **p<0.05, *p<0.1

Notes:

The table presents a multiple regression where the independent firm characteristics are determinants of the dependent firm leverage for firms with bonds issued in period 2. It is also made separately for the Real estate and Corporate services sectors. These sectors represent a majority for firms with bonds issued in period 2. Period 2 represents firms with bonds issued between years 2010-2014. All independent variables are adjusted using Winsorize 1 to 99.

Table 16. Testing of difference in mean leverage for firms in the real estate and corporate services sectors with & without bonds

Real estate		2012	2013	2014	Corporate services	2012	2013	2014
Firms without bonds	Obs	9	9	6		44	45	46
	Mean	2.6023	1.8584	2.0174		1.166	0.974	1.0175
	Std. Err.	(0.7015)	(0.3670)	(0.8574)		(0.2483)	(0.2017)	(0.2390)
Firms with bonds	Obs	8	11	14		4	6	7
	Mean	1.909	2.1449	2.4183		1.8398	2.1278	2.2478
	Std. Err.	(0.7445)	(0.6174)	(0.6595)		(0.7532)	(0.6380)	(0.7718)
Combined	Obs	17	20	20		48	51	53
	Mean	2.2760	2.0160	2.2980		1.2222	1.1098	1.1800
	Std. Err.	(0.5019)	(0.3701)	(0.5178)		(0.2355)	(0.1978)	(0.2352)
Difference	Mean	0.6932	-0.2865	-0.4009		-0.6738	-1.1538	-1.2303
	Std. Err.	(1.0229)	(0.7183)	(1.0817)		(0.7931)	(0.6692)	(0.8080)
Significance								

***p<0.01, **p<0.05, *p<0.1

Notes:
The table shows testing of mean difference in debt-to-equity for firms in the real estate and corporate services with and without bonds. The null hypothesis is that firm leverage is the same no matter if the firms have bonds or not. The testing is made for each of the years 2012-2014.